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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,744	11/26/2003	Donald L. Yates	M4065.0530/P530-A	3947

24998 7590 08/18/2005

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EXAMINER

LE, DUNG ANH

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,744

Applicant(s)

YATES ET AL.

Examiner

DUNG A. LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-48 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 29-48 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

Detailed Action

Response to Amendment

Claims 29-42 were pending. Claims 29 and 41 have been amended. Claims 43-48 have been added. Claims 29-48 are pending.

Claims 29-42 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. No. 6,750,069 to Durcan et al.

Applicant's argument filed 6/16/2005 have been fully considered but they are not deemed to be persuasive.

Set of claims 29-40, 42-44

Applicant argues that Claim 29 recites a magnetic random access memory cell comprising, *inter alia*, a "first magnetic layer," a "nonmagnetic tunnel barrier layer over said first magnetic layer," and a "second magnetic layer over said nonmagnetic tunnel barrier layer, said second magnetic layer comprising a second plurality of magnetic multilayer films, an upper layer of which includes a chemical mechanical polishing stop layer."

Durcan et al. does not disclose a magnetic random access memory cell in which a second magnetic layer has an upper layer that includes "a chemical mechanical polishing

stop layer." The upper layer of the second magnetic member 89 taught by Durcan et al. is a second tantalum layer 83. Durcan et al. does not utilize chemical mechanical polishing (CMP) during fabrication so as to require a CMP stop-layer as the upper layer of the second magnetic layer. Instead, Durcan et al. patterns layers using ion milling or reactive plasma etch, and achieves closely-spaced memory cells with minimal distances or critical dimension (CD). Claim 29 is not anticipated by Durcan et al. Claims 30-40 and 42-44 depend from claim 29, and are patentable over Durcan et al. for the same reasons:

Contrary to applicant's argument, Durcan et al. does disclose a magnetic random access memory cell structure in which a second magnetic layer has an upper layer that includes upper layer (sense layer) 92 including layer (NiFe) 81 and (Ta layer) 83 (refer to column 6, line 20). Therefore, the upper layer of layer 92 is considered as a stop layer (refer to fig. 17).

Invention claimed the upper layer (sense layer) 92 is also included layer (NiFe) 81, (Ta layer) 83 and layer (conductive) 85. Therefore, the upper layer of layer 92 is considered as a stop layer (refer to fig. 21).

Claim 29 is anticipated by Durcan et al. Claims 30-40 and 42-44 depend from claim 29, and are not patentable over Durcan et al. for the same reasons.

Independent claim 41

Applicant argues that Claim 41 recites a memory circuit that includes a plurality of memory cells. Each memory cell includes, inter alia; "a first magnetic layer," "a

nonmagnetic tunnel barrier layer over said first magnetic layer," and "a second magnetic layer over said nonmagnetic tunnel barrier layer, said second magnetic layer comprising a second plurality of magnetic multilayer films, an upper layer of which includes a chemical mechanical polishing stop layer." Durcan et al. does not disclose a magnetic random access memory cell in which a second magnetic layer has an upper layer that includes "a chemical mechanical polishing stop layer." The upper layer of the second magnetic member 89 taught by Durean et al. is a second tantalum layer 83. Durcan et al. does not utilize chemical mechanical polishing (CMP) during fabrication after deposition of the second magnetic layer, and so would not require it to have a CMP stop-layer as the upper layer. Instead, Durcan et al, uses ion milling or reactive plasma etch, and achieves closely-spaced memory cells with minimal critical dimension (CD). Claim 41 is not anticipated by Durcan et al.

Contrary to applicant's argument, Durcan et al. does disclose a magnetic random access memory cell structure in which a second magnetic layer has an upper layer that includes upper layer (sense layer) 92 including layer (NiFe) 81 and (Ta layer) 83 (refer to column 6, line 20). Therefore, the upper layer of layer 92 is considered as a stop layer (refer to fig. 17).

Invention claimed the upper layer (sense layer) 92 is also included layer (NiFe) 81, (Ta layer) 83 and layer (conductive) 85. Therefore, the upper layer of layer 92 is considered as a stop layer (refer to fig. 21).

Claim 41 is anticipated by Durcan et al.

Set of newly added claims 45-48:

Durcan et al. does disclose a magnetic random access memory cell structure in which a second magnetic layer has an outer layer that includes outer layer (sense layer) 92 including layer (NiFe) 81 and (Ta layer) 83 (refer to column 6, line 20). Therefore, the outer layer of layer 92 is considered as a stop layer (refer to fig. 17).

Invention claimed the outer layer (sense layer) 92 is also included layer (NiFe) 81, (Ta layer) 83 and layer (conductive) 85. Therefore, the outer layer of layer 92 is considered as a stop layer (refer to fig. 21).

Set of Claim 45-48 are anticipated by Durcan et al. and are not patentable over Durcan et al. for the same reasons.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE 
Primary Examiner
Art Unit 2818